



# Restore PostgreSQL

SnapCenter software

NetApp

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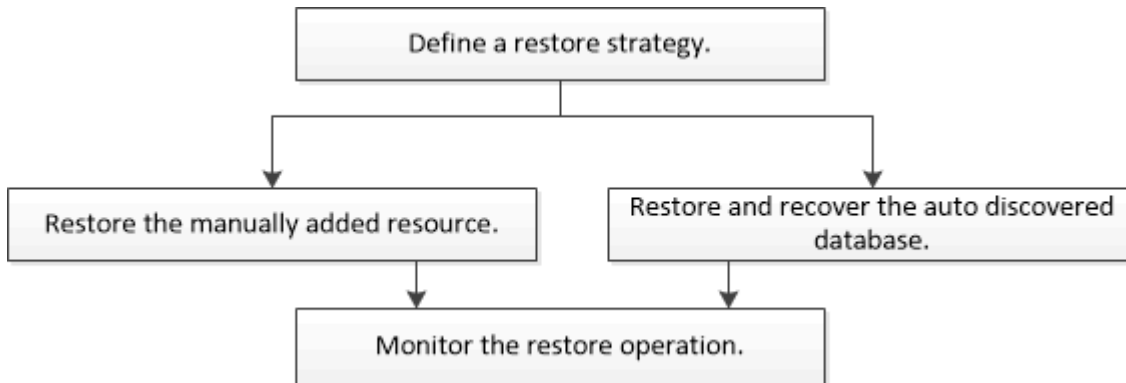
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# Restore PostgreSQL

## Restore workflow

The restore and recovery workflow includes planning, performing the restore operations, and monitoring the operations.

The following workflow shows the sequence in which you must perform the restore operation:



You can also use PowerShell cmdlets manually or in scripts to perform backup, restore, and clone operations. The SnapCenter cmdlet help and the cmdlet reference information contain detailed information about PowerShell cmdlets.

[SnapCenter Software Cmdlet Reference Guide.](#)

## Restore and recover a manually added resource backup

You can use SnapCenter to restore and recover data from one or more backups.

### Before you begin

- You must have backed up the resource or resource groups.
- You must have canceled any backup operation that is currently in progress for the resource or resource group that you want to restore.
- For pre restore, post restore, mount, and unmount commands, you should check if the commands exist in the command list available on the plug-in host from the following paths:
  - Default location on the Windows host: `C:\Program Files\NetApp\SnapCenter\Snapcenter Plug-in Creator\etc\allowed_commands.config`
  - Default location on the Linux host: `/opt/NetApp/snapcenter/scc/etc/allowed_commands.config`



If the commands do not exist in the command list, then the operation will fail.

### About this task

- For ONTAP 9.12.1 and below version, the clones created from the SnapLock Vault Snapshots as part of restore will inherit the SnapLock Vault expiry time. Storage admin should manually cleanup the clones post the SnapLock expiry time.

## SnapCenter UI

### Steps

1. In the left navigation pane, click **Resources**, and then select the appropriate plug-in from the list.
2. In the Resources page, filter resources from the **View** drop-down list based on resource type.

The resources are displayed along with type, host, associated resource groups and policies, and status.




Although a backup might be for a resource group, when you restore, you must select the individual resources you want to restore.

If the resource is not protected, “Not protected” is displayed in the Overall Status column. This can mean either that the resource is not protected, or that the resource was backed up by a different user.

3. Select the resource, or select a resource group and then select a resource in that group.

The resource topology page is displayed.

4. From the Manage Copies view, select **Backups** either from the primary or secondary (mirrored or vaulted) storage systems.

5. In the Primary backup(s) table, select the backup that you want to restore from, and then click .



Backup Name	End Date
rg1_scipr0191685001_01-05-2017_01.35.06.6463	1/5/2017 1:35:27 AM

6. In the Restore Scope page, select **Complete Resource**.

- a. If you select **Complete Resource**, all of the configured data volumes of the PostgreSQL cluster are restored.

If the resource contains volumes or qtrees, the Snapshots taken after the Snapshot selected for restore on such volumes or qtrees are deleted and cannot be recovered. Also, if any other resource is hosted on same volumes or qtrees, then that resource is also deleted.

You can select multiple LUNs.



If you select **All**, all the files on the volumes, qtrees, or LUNs are restored.

7. In the Pre ops page, enter pre restore and unmount commands to run before performing a restore job.

Unmount commands are not available for auto discovered resources.

8. In the Post ops page, enter mount and post restore commands to run after performing a restore job.

Mount commands are not available for auto discovered resources.

9. In the Notification page, from the **Email preference** drop-down list, select the scenarios in which you want to send the emails.

You must also specify the sender and receiver email addresses and the subject of the email. SMTP must also be configured on the **Settings > Global Settings** page.

10. Review the summary, and then click **Finish**.
11. Monitor the operation progress by clicking **Monitor > Jobs**.

### PowerShell cmdlets

#### Steps

1. Initiate a connection session with the SnapCenter Server for a specified user by using the `Open-SmConnection` cmdlet.

```
PS C:\> Open-Smconnection
```

2. Retrieve the information about the one or more backups that you want to restore by using the `Get-SmBackup` and `Get-SmBackupReport` cmdlets.

This example displays information about all available backups:

```
PS C:\> Get-SmBackup
```

BackupId	BackupName	BackupTime	BackupType
-----	-----	-----	-----
1	Payroll Dataset_vise-f6_08...	8/4/2015	11:02:32
AM	Full Backup		
2	Payroll Dataset_vise-f6_08...	8/4/2015	11:23:17
AM			

This example displays detailed information about the backup from January 29th 2015 to February 3rd, 2015:

```
PS C:\> Get-SmBackupReport -FromDate "1/29/2015" -ToDate "2/3/2015"
```

```
SmBackupId      : 113
SmJobId         : 2032
StartDateTime   : 2/2/2015 6:57:03 AM
EndDateTime     : 2/2/2015 6:57:11 AM
Duration        : 00:00:07.3060000
CreatedDateTime : 2/2/2015 6:57:23 AM
Status          : Completed
ProtectionGroupName : Clone
SmProtectionGroupId : 34
PolicyName      : Vault
SmPolicyId      : 18
BackupName      : Clone_SCSPR0019366001_02-02-2015_06.57.08
VerificationStatus : NotVerified

SmBackupId      : 114
SmJobId         : 2183
StartDateTime   : 2/2/2015 1:02:41 PM
EndDateTime     : 2/2/2015 1:02:38 PM
Duration        : -00:00:03.2300000
CreatedDateTime : 2/2/2015 1:02:53 PM
Status          : Completed
ProtectionGroupName : Clone
SmProtectionGroupId : 34
PolicyName      : Vault
SmPolicyId      : 18
BackupName      : Clone_SCSPR0019366001_02-02-2015_13.02.45
VerificationStatus : NotVerified
```

3. Restore data from the backup by using the Restore-SmBackup cmdlet.

```

Restore-SmBackup -PluginCode 'DummyPlugin' -AppObjectId
'scc54.sscore.test.com\DummyPlugin\NTP\DB1' -BackupId 269
-Confirm:$false
output:
Name                : Restore
'scc54.sscore.test.com\DummyPlugin\NTP\DB1'
Id                  : 2368
StartTime           : 10/4/2016 11:22:02 PM
EndTime             :
IsCancellable       : False
IsRestartable       : False
IsCompleted         : False
IsVisible           : True
IsScheduled         : False
PercentageCompleted : 0
Description         :
Status              : Queued
Owner               :
Error               :
Priority             : None
Tasks               : {}
ParentJobID         : 0
EventId             : 0
JobTypeId           :
ApisJobKey          :
ObjectId            : 0
PluginCode          : NONE
PluginName          :

```

The information regarding the parameters that can be used with the cmdlet and their descriptions can be obtained by running *Get-Help command\_name*. Alternatively, you can also refer to the [SnapCenter Software Cmdlet Reference Guide](#).

## Restore and recover an auto discovered cluster backup

You can use SnapCenter to restore and recover data from one or more backups.

### Before you begin

- You must have backed up the resource or resource groups.
- You must have canceled any backup operation that is currently in progress for the resource or resource group that you want to restore.
- For pre restore, post restore, mount, and unmount commands, you should check if the commands exist in the command list available on the plug-in host from the following paths:
  - Default location on the Windows host: *C:\Program Files\NetApp\SnapCenter\Snapcenter Plug-in*

Creator\etc\allowed\_commands.config

- Default location on the Linux host: /opt/NetApp/snapcenter/scc/etc/allowed\_commands.config



If the commands do not exist in the command list, then the operation will fail.

### About this task

- File-based backup copies cannot be restored from SnapCenter.
- For Auto-discovered resources, restore is supported with SFSR.
- Auto-recovery is not supported.
- For ONTAP 9.12.1 and below version, the clones created from the SnapLock Vault snapshots as part of restore will inherit the SnapLock Vault expiry time. Storage admin should manually cleanup the clones post the SnapLock expiry time.

### Steps

1. In the left navigation pane, click **Resources**, and then select the appropriate plug-in from the list.
2. In the Resources page, filter resources from the **View** drop-down list based on resource type.

The resources are displayed along with type, host, associated resource groups and policies, and status.




Although a backup might be for a resource group, when you restore, you must select the individual resources you want to restore.

If the resource is not protected, “Not protected” is displayed in the Overall Status column. This can mean either that the resource is not protected, or that the resource was backed up by a different user.

3. Select the resource, or select a resource group and then select a resource in that group.

The resource topology page is displayed.

4. From the Manage Copies view, select **Backups** either from the primary or secondary (mirrored or vaulted) storage systems.

5. In the Primary backup(s) table, select the backup that you want to restore from, and then click .



Backup Name	End Date
rg1_scpn0191685001_01-05-2017_01.35.06.6463	1/5/2017 1:35:27 AM

6. In the Restore Scope page, select **Complete Resource** to restore the configured data volumes of the PostgreSQL cluster.
7. In the Recovery scope page, select one of the following options:

If you...	Do this...
-----------	------------

Want to recover as close as possible to the current time	Select <b>Recover to most recent state</b> . For single container resources specify one or more log and catalog backup locations.
Want to recover to the specified point in time	Select <b>Recover to point in time</b> .  a. Enter date and time. Enter date and time. For example, the PostgreSQL Linux host is located in Sunnyvale, CA and the user in Raleigh, NC is recovering the logs in to SnapCenter.  If the user wants to perform a recovery to 5 a.m. Sunnyvale, CA, then the user has to set the browser time zone to the PostgreSQL Linux host time zone, which is GMT-07:00 and specify the date and time as 5:00 a.m.
Do not want to recover	Select <b>No recovery</b> .



You cannot recover manually added PostgreSQL resources.



SnapCenter Plug-in for PostgreSQL creates a `backup_label` and `tablespace_map` in `/<OS_temp_folder>/postgresql_sc_recovery<Restore_JobId>/_` folder to help recover manually.

1. In the Pre ops page, enter pre restore and unmount commands to run before performing a restore job.

Unmount commands are not available for auto discovered resources.

2. In the Post ops page, enter mount and post restore commands to run after performing a restore job.

Mount commands are not available for auto discovered resources.

3. In the Notification page, from the **Email preference** drop-down list, select the scenarios in which you want to send the emails.

You must also specify the sender and receiver email addresses and the subject of the email. SMTP must also be configured on the **Settings > Global Settings** page.

4. Review the summary, and then click **Finish**.
5. Monitor the operation progress by clicking **Monitor > Jobs**.

## Restore resources using PowerShell cmdlets

Restoring a resource backup includes initiating a connection session with the SnapCenter Server, listing the backups and retrieving backup information, and restoring a backup.

You must have prepared the PowerShell environment to execute the PowerShell cmdlets.

### Steps

1. Initiate a connection session with the SnapCenter Server for a specified user by using the Open-SmConnection cmdlet.

```
PS C:\> Open-Smconnection
```

2. Retrieve the information about the one or more backups that you want to restore by using the Get-SmBackup and Get-SmBackupReport cmdlets.

This example displays information about all available backups:

```
PS C:\> Get-SmBackup
```

BackupId	BackupName	BackupTime
1	Payroll Dataset_vise-f6_08...	8/4/2015 11:02:32 AM
2	Payroll Dataset_vise-f6_08...	8/4/2015 11:23:17 AM

This example displays detailed information about the backup from January 29th 2015 to February 3rd, 2015:

```
PS C:\> Get-SmBackupReport -FromDate "1/29/2015" -ToDate "2/3/2015"
```

```
SmBackupId      : 113
SmJobId         : 2032
StartDateTime   : 2/2/2015 6:57:03 AM
EndDateTime     : 2/2/2015 6:57:11 AM
Duration        : 00:00:07.3060000
CreatedDateTime : 2/2/2015 6:57:23 AM
Status          : Completed
ProtectionGroupName : Clone
SmProtectionGroupId : 34
PolicyName      : Vault
SmPolicyId      : 18
BackupName      : Clone_SCSPR0019366001_02-02-2015_06.57.08
VerificationStatus : NotVerified
```

```
SmBackupId      : 114
SmJobId         : 2183
StartDateTime   : 2/2/2015 1:02:41 PM
EndDateTime     : 2/2/2015 1:02:38 PM
Duration        : -00:00:03.2300000
CreatedDateTime : 2/2/2015 1:02:53 PM
Status          : Completed
ProtectionGroupName : Clone
SmProtectionGroupId : 34
PolicyName      : Vault
SmPolicyId      : 18
BackupName      : Clone_SCSPR0019366001_02-02-2015_13.02.45
VerificationStatus : NotVerified
```

3. Restore data from the backup by using the Restore-SmBackup cmdlet.

```

Restore-SmBackup -PluginCode 'DummyPlugin' -AppObjectId
'scc54.sscore.test.com\DummyPlugin\NTP\DB1' -BackupId 269
-Confirm:$false
output:
Name                : Restore
'scc54.sscore.test.com\DummyPlugin\NTP\DB1'
Id                  : 2368
StartTime           : 10/4/2016 11:22:02 PM
EndTime             :
IsCancellable       : False
IsRestartable       : False
IsCompleted         : False
IsVisible           : True
IsScheduled         : False
PercentageCompleted : 0
Description         :
Status              : Queued
Owner               :
Error               :
Priority             : None
Tasks               : {}
ParentJobID         : 0
EventId             : 0
JobTypeId           :
ApisJobKey          :
ObjectId            : 0
PluginCode          : NONE
PluginName          :

```

The information regarding the parameters that can be used with the cmdlet and their descriptions can be obtained by running *Get-Help command\_name*. Alternatively, you can also refer to the [SnapCenter Software Cmdlet Reference Guide](#).

## Monitor PostgreSQL restore operations







You can monitor the progress of different SnapCenter restore operations by using the Jobs page. You might want to check the progress of an operation to determine when it is complete or if there is an issue.

### About this task


Post-restore states describe the conditions of the resource after a restore operation and any further restore actions that you can take.

The following icons appear on the Jobs page, and indicate the state of the operation:

-

-  In progress
-  Completed successfully
-  Failed
-  Completed with warnings or could not start due to warnings
-  Queued
-  Canceled

## Steps

1. In the left navigation pane, click **Monitor**.
2. In the **Monitor** page, click **Jobs**.
3. In the **Jobs** page, perform the following steps:
  - a. Click  to filter the list so that only restore operations are listed.
  - b. Specify the start and end dates.
  - c. From the **Type** drop-down list, select **Restore**.
  - d. From the **Status** drop-down list, select the restore status.
  - e. Click **Apply** to view the operations that have been completed successfully.
4. Select the restore job, and then click **Details** to view the job details.
5. In the **Job Details** page, click **View logs**.

The **View logs** button displays the detailed logs for the selected operation.

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